TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN ANALYTICAL CHEMISTRY

ACH2205 : ORGANIC CHEMISTRY II

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

(a) (i) Draw and name structures of examples of 1^0,2^0 and 3^0 amines that contain four Sp^3 hybridized carbon atoms. (7 marks)

(ii) Using the same criterion name and provide examples of 1^0,2^0 and 3^0 alcohols. (6marks)

(iii) How does the classification system differ between the two functional groups. (4marks)

(b) Give the disadvantage of using CCl_2F_2 as an aerosol propellant. (3marks)

(c) A grignard reagent CH_3CH_2MgCl react with an aldehyde $CH_3CH_2CH_2CHO$ and ketone CH_3COCH_3 to form different products. Write equations for formation of these products and name them. (6marks)

(d) Explain why carboxylic acids have higher boiling points than corresponding alkanes of comparable mass. (4marks)

Question TWO

(a) With help of equations, explain how you would obtain CH_3CH_2COOH from an alkylhalide. (Hint:- it's a two steps reaction). (7marks)

(b) Both aldehyde and ketone have polar carbonyl group in their molecules but aldehyde is readily oxidized while ketone is not.

(i) Give a reason for this kind of behavior. (3marks)

(ii) Name the product of this oxidation. (1marks)

(c) Describe a simple chemical test of identifying aldehyde and ketone in the lab. (4marks)

Question THREE

Account for the following behaviors.

(i) Acyl halide undergo nucleophilic substitution reaction more readily than alkyl halides. (7marks)

(ii) Ethanamide (CH_3CONH_2) is less nucleophilic than Ethylamine ($CH_3CH_2NH_2$) (3marks)

(iii) Carboxylic acids do not undergo electrophilic or nucleophilic substitution. (5marks)

Question FOUR

(a) State (i) FOUR physical properties of carboxylic acids. (10marks)

(ii) TWO uses of carboxylic acids. (5marks)

(b) State the medical use of Diphenhydramine amine salt. (2marks)

Question FIVE

(a) Giving one specific example, state FOUR uses of amines. (8marks)

(b) (i) Explain why ionic compounds of amine salt have got excellent use in preparation of drugs . (5marks)

(ii) State the medical use of Diphenhydramine amine salt. (2marks)